Accountability Report

2015–2016

Environment

NOVA SCOTIA

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Accountability Statement

The Accountability Report of Nova Scotia Environment for the year ended March 31, 2016 is prepared pursuant to the *Finance Act* and government policies and guidelines. These authorities require the reporting of outcomes against Nova Scotia Environment's Statement of Mandate for the fiscal year just ended.

The reporting of the department's outcomes necessarily includes estimates, judgments and opinions by Nova Scotia Environment management.

We acknowledge that this Accountability Report is the responsibility of department management. The report is, to the extent possible, a complete and accurate representation of outcomes relative to the goals and priorities set out in the Nova Scotia Environment's 2015-2016 Statement of Mandate.

Original signed by

Honourable Margaret Miller
Minister of Environment

Original signed by

Frances Martin
Deputy Minister of Environment

Message from Minister

I am pleased to provide you with Nova Scotia Environment's Accountability Report for the fiscal year 2015-2016. The report outlines the department's success in meeting its goals as set out in its 2015-2016 Statement of Mandate.

A large focus of our work during 2015-2016 was legally protecting sites identified in the province's Parks and Protected Areas Plan. Eighty-nine (89) sites were officially protected as wilderness areas or nature reserves, which means we have now met the goal under the Environmental Goals and Sustainable Prosperity Act (EGSPA) to protect at least 12 per cent of the province's landmass by 2015. Progress was also made on identifying recreation and tourism opportunities associated with wilderness areas and nature reserves.

This past year, the department continued its work to modernize regulations under the Environment Act. Changes to the On-site Sewage Disposal Systems Regulations introduced the use of notifications, which will help reduce regulatory burden. This follows changes that were already made to the watercourse alterations program.

The department released its first air zone report, which compares provincial air quality to the new national standards for particulate matter and ozone. The results show that the standards were achieved in all four of our air zones.

Another key achievement was combining the inspection, compliance and enforcement functions from Environment, Natural Resources, Health and Wellness, Agriculture, and Fisheries and Aquaculture into one department. This allows the province to separate the responsibility for sector development from regulatory compliance. It will also lead to a more unified, coordinated approach for improved protection of the public's health, our natural resources and our environment.

Thank you to our staff for their dedication and commitment to the work of the department on behalf of Nova Scotians.

Thank you also to the people of our province for engaging with me on issues affecting our environment and their ideas for helping to protect it. I encourage Nova Scotians to continue this dialogue through my email address: Minister.Environment@novascotia.ca.

Margaret Miller
Minister of Environment

1. Financial Results

Nova Scotia Environment			
Program and Service Area	**2015/16 Estimate ($ thousands)**	**2015/16 Actual ($ thousands)**	**Variance ($ thousands)**
Ordinary Revenues, Fees and Recoveries	$4,832	$5,076	244
TCA Purchase Requirements	$595	$756	161
Administration	$896	$884	(12)
Policy	$4,605	$4,333	(272)
Compliance	$12,082	$12,104	22
Sustainability & Applied Science	$7,760	$7,480	(280)
Total Gross Program Expenses	$25,343	$24,801	(542)
Funded Staff (FTEs)	237.9	223.8	(14.1)

2. Strategic Outcomes, Priority Projects and Accomplishments

In the Statement of Mandate for 2015-2016, Nova Scotia Environment (NSE) provided examples of priority projects planned for the year under three strategic outcomes. They are based on our mandate and linked to the vision, mission, performance measures and government's priorities.

NSE shows the progress made in achieving our mandate and government priorities through the performance measures on pages 12 to 35, and through the accomplishments of priority projects examples, as provided below.

Strategic Outcome #1

Protection, enhancement and prudent use of the environment

Example of Project: Modernization of the Regulations

What We Said

In 2015-2016, NSE will continue to modernize regulations to align our resources with those activities that pose the greatest risk to our environment. This will create new rules to allow routine and lower risk activities to be responsibly carried out by qualified individuals in accordance with standards, with intervention by NSE only when non-compliance occurs. We will also introduce new efficient processes to reduce the administrative burden for businesses and individuals, to maximize our resources.

These efforts will help us ensure the most efficient and sustainable, cost-effective delivery of our services in the coming years while creating or maintaining jobs across the Province.

What We Did

In 2015, regulatory amendments were made to allow most types of on-site sewage systems to be done through notifications rather than approvals. This will result in less regulatory burden for industry because they will not have to wait for an approval, and there will be less associated paperwork. It will allow departmental resources to be used more efficiently and directed toward higher-risk activities. The changes would

make government more effective in delivering programs without presenting additional risk to the environment.

Example of Project: New Air Quality Management System

What We Said
Beginning in 2015, NSE will be implementing "air zone management" which is a component of the national Air Quality Management System (AQMS). This will include reporting in four air zones that cover the entire province and use more stringent Canadian Ambient Air Quality Standards (CAAQS) for particulate matter (PM) and Ozone that will replace the previously used Canada-wide Standard (CWS).

What We Did
Nova Scotia continued to implement the national Air Quality Management System (AQMS) in 2015. One key achievement was the release of Nova Scotia's first air zone report, which compares provincial air quality to the new Canadian Ambient Air Quality Standards (CAAQS) for particulate matter (PM) and ozone.

The air zone measurement results show that the CAAQS were achieved in all four of Nova Scotia's air zones. The Central air zone was in a range that requires actions for preventing air quality degradation (Yellow). The other three air zones were in the range that requires actions for preventing CAAQS exceedance (Orange). Nova Scotia will release its second air zone report in 2016 and continue with work to ensure CAAQS are achieved in our air zones.

Example of Project: New Emission Limits for the Electricity Sector

What We Said
Amendments to Nova Scotia's Air Quality Regulations in November 2014 established new emission limits for the electricity sector for the next 15 years. The new requirements are part of NSE's overall strategy to transform the electricity sector to cleaner-burning renewable energy sources, lower greenhouse gases and increase demand-side management initiatives that will benefit electricity ratepayers. These amendments will allow us to achieve our environmental goals and improve air quality in a way that is more affordable for Nova Scotians.

What We Did
Amendments that were made to the Air Quality Regulations in January 2015 introduced the ability for Nova Scotia Power to achieve some of the mercury reduction requirements through a mercury diversion program.

In 2015, Nova Scotia Power submitted its mercury reduction plan, which was subsequently approved in November of 2015. The plan focuses on offering province-wide mercury recycling that is free for all citizens for Nova Scotia. Approximately 2.3 kg of mercury was diverted from landfill in 2015 through this program. The new requirements are part of NSE's overall strategy to transform the electricity sector to cleaner-burning renewable energy sources, lower greenhouse gases and increased demand-side management initiatives that will benefit electricity ratepayers and achieve environmental outcomes.

Example of Project: Implementation of Contaminated Sites Regulations

What We Said
Continued implementation of Contaminated Sites Regulations, which became effective in July 2013, will ensure that NSE receives notification of any new contaminated sites and that these properties follow the prescribed assessment and remediation process. Remediation of contaminated sites and particularly brownfield sites will help return properties to productive use and help re-develop downtown streetscapes throughout Nova Scotia.

What We Did
Implementation of the Contaminated Sites Regulations has led to consistency in the notification, assessment and remediation of contaminated sites in Nova Scotia. The options that have been incorporated into the Contaminated Sites Regulations and seven supporting Ministerial Protocols have provided the flexibility necessary to ensure the environmental and economic benefits of addressing contaminated sites in Nova Scotia are recognized.

Strategic Outcome #2

Establishment and management of wilderness areas and nature reserves for protection of biodiversity, for public understanding and appreciation and for prudent use

Example of Project: Parks and Protected Areas Plan

What We Said

This plan includes land that once protected will allow the province to meet the Environmental Goals and Sustainability Prosperity Act (EGSPA) goal of protecting at least 12 per cent by 2015. The first priority project for 2015-2016 is to continue the legal protection of areas included in the plan.

Protecting our provincial lands ensures that these areas continue to thrive and also that Nova Scotia's park system is updated to secure and strengthen its long-term success. As well, a sustainable protected areas system contributes to economic growth by providing a range of natural services, supporting outdoor recreation and tourism industries, and helping to brand Nova Scotia as a clean, green place in which to live, work, and do business.

What We Did

Between January and December 2015, the province announced the legal protection of an additional 147,168 hectares of land, including 28 new wilderness areas, additions to 21 existing wilderness areas, 37 new nature reserves, and additions to 3 existing nature reserves. As of March 31, 2016, NSE protected a total of 513,155 hectares throughout the province as wilderness areas and nature reserves. Including other qualifying lands, approximately 677,817 hectares or 12.26 per cent of Nova Scotia was legally protected.

Other actions were also advanced in 2015-16, including: holding regional consultations on the pending Medway Lakes, Holden Lake, and South Panuke wilderness areas; advancing work on hiking and off-highway vehicle trail agreements, including new long distance trails at Humes River, Blue Mountain-Birch Cove Lakes, and Pollets Cove-Aspy Fault Wilderness Areas; and working with other government departments and partners to identify and enhance the delivery of benefits associated with protected areas.

Example of Project: Protected Areas Management

What We Said
Another priority project in 2015-2016 is to assess ecological risks and public use opportunities in protected areas, and initiate management planning.

What We Did
In 2015-16 significant progress was made on developing a science-based tool to provide an ecological risk rating for each wilderness area and nature reserve based on ecological vulnerability and threats. Special attention was given to integrating climate change considerations. Progress was also made on systematically identifying recreation and tourism opportunities associated with wilderness areas and nature reserves. This work will be used to prioritize resource deployment and inform management actions, with a goal of ensuring the ecological integrity of protected areas while supporting appropriate economic development and recreational use.

The department was also involved in a major community-based initiative aimed at building a sustainable strategic tourism plan for the region between Musquodoboit Harbour and Sherbrooke. Working through the Atlantic Canada Opportunities Agency's (ACOA) Strategic Tourism Expansion Program (STEP), this initiative resulted in the April 2016 release of a strategic plan for experiential tourism development centered around the recently protected Eastern Shore Islands Wilderness Area — islands protected by the Nova Scotia Nature Trust, and other associated provincial parks and wilderness areas.

Next steps for this initiative include completing a comprehensive inventory of natural and cultural values and recreational opportunities associated with these conservation lands to inform the development of a sustainable tourism development plan for the area.

Strategic Outcome #3:

Recognition of the interdependence of economic, environmental and social health and the significance of environmental assets to long-term prosperity

Example of Priority Project: A Strategy for Greening the Economy

What We Said

NSE continues to develop a strategy for "greening" the economy that is consistent with other actions (OneNS, for example) and that promotes a shared commitment to sustaining a healthy environment and supports a strong, competitive economy and vibrant, thriving communities. The goal of the proposed "Strategy for Greening the Economy" is to provide guidance and strategies for furthering the greening of our overall economy. This goal supports the growing recognition that "greening" the overall economy brings not only environmental and resource sustainability, but also long-term economic benefits.

What We Did

A stand-alone Strategy for Greening the Economy is no longer being pursued. NSE is working with other government departments to ensure the integration of green economy objectives with shared economic goals.

Example of Project: Solid Waste Regulations Review

What We Said

NSE is reviewing its Solid Waste Regulations to encourage greater waste diversion, and to improve the fiscal sustainability of the overall solid waste system.

Diverting waste from disposal not only protects the environment but also increases economic activity and job creation. Renewing and revising the regulations to enhance corporate stewardship through additional extended producer responsibility will help municipalities financially and contribute to the attainment of the goal of 300 kg/person.

What We Did
In 2015-2016, the department continued to engage industry and stakeholders to improve understanding of the proposed regulatory amendments and to further assess impacts on business. NSE staff continued active participation on the municipal "Priorities" Sub-Committee of the Regional Chairs Committee on Solid Waste Management, to address questions and develop more concrete proposals.

During this year it was decided that proposals for new extended producer responsibility programs would not advance until more detailed information on impacts to business were explored and understood and support was from confirmed from municipalities and businesses.

Example of Project: Drinking Water Program Renewal

What We Said
NSE is renewing the public water supply components of the 2002 Drinking Water Strategy and will develop a 10-year implementation plan to ensure continuous improvement of the drinking water program. Protecting human health and the environment by renewing the drinking water program helps to ensure that individuals will continue to have clean and safe water for consumption, recreation, and livelihoods.

What We Did
NSE completed the evaluation of Nova Scotia's Drinking Water Program. We reaffirmed commitment to the program vision included in the 2002 Drinking Water Strategy to build on our previous successes.

The outcome of the program evaluation is a work plan for continuous improvement, designed to minimize the risk of health effects attributed to drinking water and allow for effective and efficient oversight of Nova Scotia's Drinking Water Program. Collaboratively, we will work with our stakeholders to ensure Nova Scotians continue to have access to clean, safe water for consumption, recreation, and livelihoods.

Example of Priority Project: Wastewater Standards for Nova Scotia

What We Said
Nova Scotia is developing a provincial wastewater standard that will incorporate the objectives of the Municipal Wastewater Effluent (MWWE) Strategy, and is now finalizing that standard, following consultation with municipalities. This process will involve a review of regulatory tools and processes while addressing "The Better Regulation Initiative". These new wastewater standards will improve upon our existing treatment of wastewater before it is discharged to the environment and reduce the risks posed to human and environmental health.

What We Did
NSE is working on a draft standard and is considering options for implementation.

3. Measuring Our Performance

The status of NSE's performance measures contained in the 2015-2016 Statement of Mandate demonstrates the progress we made in achieving our mandate of protecting the environment. These updates are summarized below.

Mandate: Environment Act – Clean Air

Outcome
Clean Air - Nova Scotia Power Inc.'s (NSPI) annual air emissions of sulphur dioxide (SO_2) are below their regulated emissions cap.

Measure
Annual total sulphur dioxide (SO_2) air emissions (tonnes) into the atmosphere by NSPI.

Target
The 2015 target (which is a maximum 72,500 tonnes within an overall 5-year maximum of 304,500 tonnes) is for NSPI to achieve a 50 per cent reduction in SO_2 emissions from their 1995 cap of 145,000 tonnes, then ultimately to no greater than 20,000 tonnes by 2030 (a full 86 per cent less than their 1995 cap of 145,000 tonnes).

These caps are outlined in the table below:

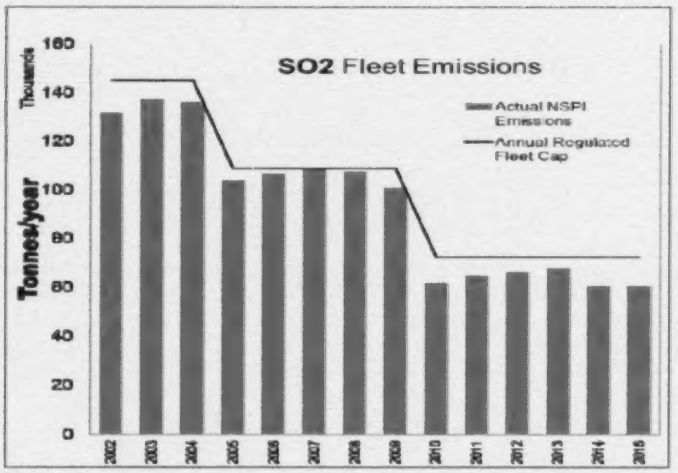
Year	Cap (tonnes)
2010	72,500
2015-2019	≤ 304,500 total with ≤ 72,500 per year
2020	≤ 36,250
2021-2024	≤ 136,000 total with ≤ 36,250 per year
2025	≤ 28,000
2026-2029	≤ 104,000 total with ≤ 28,000 per year
2030	≤ 20,000

Why this Measure and Target(s)?
SO_2 contributes to the formation of smog and acid precipitation, which have negative effects on human health and the environment. In Nova Scotia, most of the SO_2 emissions are produced by thermal electric power generation. The purpose of this measure and targets is to limit NSPI's SO_2 emissions to reduce smog and acid precipitation.

Strategic Actions Taken to Achieve the Target
Regulations, and subsequent amendments, were created by NSE to set emissions caps for NSPI and to require them to report annually to the department to demonstrate progress in meeting these caps.

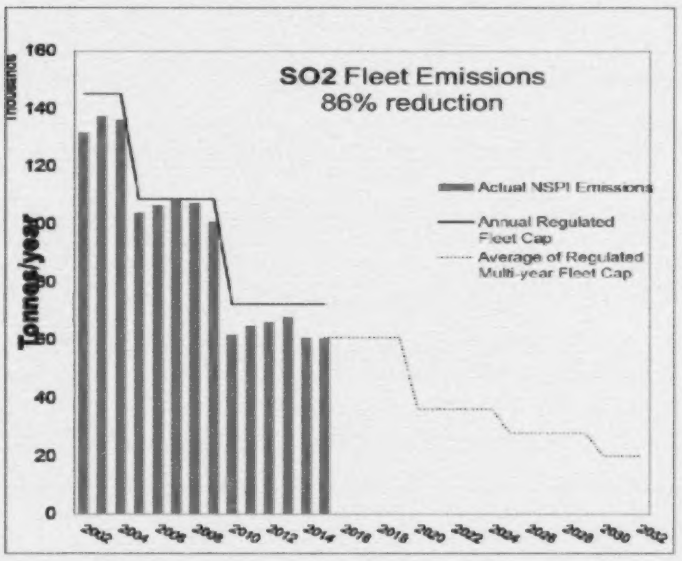
2015-2016 Results

In 2015, NSPI emitted 60,608 tonnes of SO_2 into the atmosphere, which was less than the emissions cap of 72,500 tonnes.



Ultimate Goal

Our ultimate goal is to have clean air. Our goal for this measure is to have NSPI continue to meet the caps in the Air Quality Regulations, resulting in cleaner air. In addition to the 2010 target, SO_2 emissions caps have been set in the regulations for NSPI for 2015 (60,900 tonnes) and 2020 (36,250 tonnes).



Mandate: Environment Act — Clean Air

Outcome
Clean Air — Nova Scotia Power Inc.'s (NSPI) annual air emissions of nitrogen oxides (NO_x) are below their regulated emissions cap.

Measure
Annual total nitrogen oxide (NO_x tonnes) emitted into the atmosphere by NSPI.

Target
The 2015 target is 21,365 tonnes of NOx emissions, or 20 per cent less than the base year 2000. Ultimately, by 2030 the target will be 8,800 tonnes, or 69 per cent less than base year emissions. These caps are outlined in the table below.

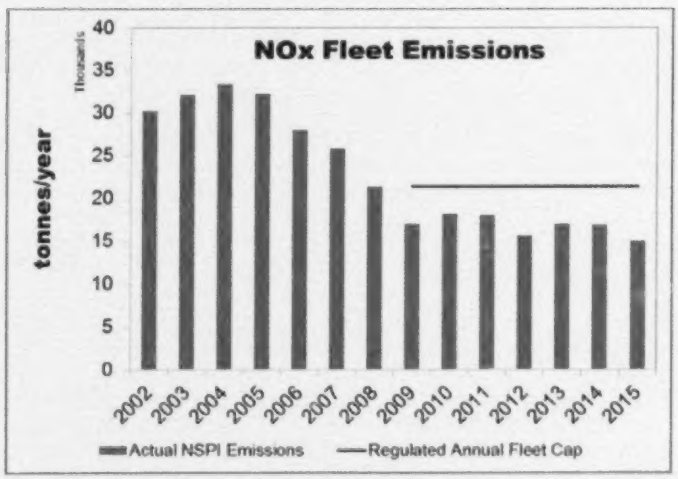
Year	Cap (tonnes)
2009	21,365
2015–2019	≤ 96,140 total with ≤ 21,365 per year
2020	≤ 14,955
2021–2024	≤ 56,000 total with ≤ 14,955 per year
2025	≤ 11, 500
2026–2029	≤ 44, 000 total with ≤ 11,500 per year
2030	≤ 8, 800

Why this Measure and Target(s)?
NO_x contributes to the formation of smog and acid precipitation, which have negative effects on human health and the environment. In Nova Scotia, NO_x emissions are produced by a variety of sources, including thermal electric power generation. The purpose of this measure and targets is to limit NSPI's NO_x emissions to reduce smog and acid precipitation. NSPI is a significant emitter of NO_x in the province.

Strategic Actions Taken to Achieve the Target
Regulations were created by NSE to set emissions caps for NSPI and to require them to report annually to the department to demonstrate progress in meeting these caps.

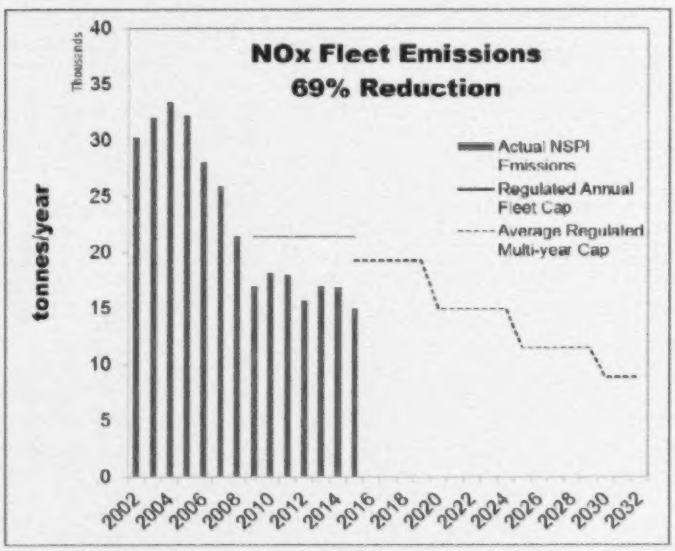
2015-2016 Results

In 2015, NSPI emitted 15,026 tonnes of NOx into the atmosphere, which was a 40 per cent decrease from 2000 emissions levels and below the emissions maximum of 21,365 tonnes.



Ultimate Goal

Our ultimate goal is clean air. Our goal for this measure is to have NSPI continue to meet the targets in the Air Quality Regulations, resulting in cleaner air. In addition to the 2009 target, NO_x emission caps have been set in the regulations for NSPI out to 2030 of 8,800 tonnes, which results in a 69 per cent decrease from base year 2000.



Mandate: Environment Act — Clean Air

Outcome
Clean Air — Nova Scotia Power Inc.'s (NSPI) annual air emissions of mercury are below the regulated emissions cap.

Measure
Annual total mercury air emissions (kg) from NSPI's coal-fired electric power generating stations.

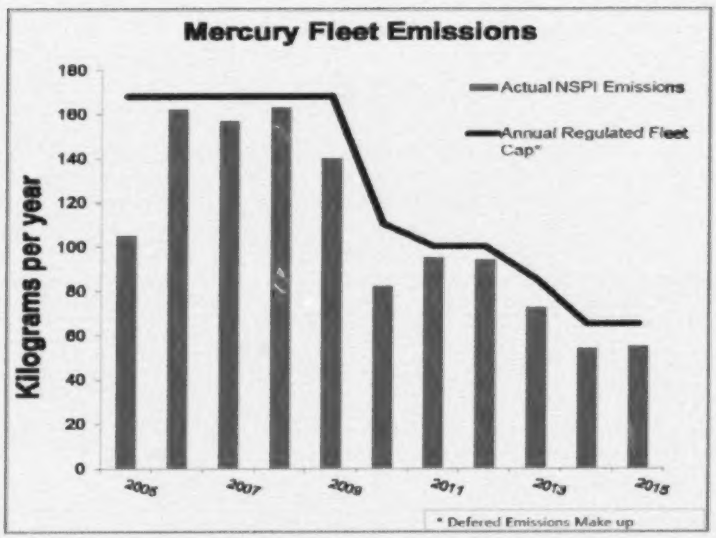
Target
The target is for NSPI to limit mercury emissions to be within the emissions caps for coal-fired electrical power stations. The first cap on NSPI's mercury emissions was set at 168 kg in 2005. There are declining emissions caps until 2020. The cap in 2013 was 85 kg, in 2014 it was 65 kg, and in 2020 it will be 35 kg. A final cap of 30 kg has been set for 2030, which is 89 per cent less than baseline. These caps are outlined in the table below:

Year	Cap (kg)
2005	168
2010	110
2011-2012	100
2013	85
2014	65
2020	35
2030	30

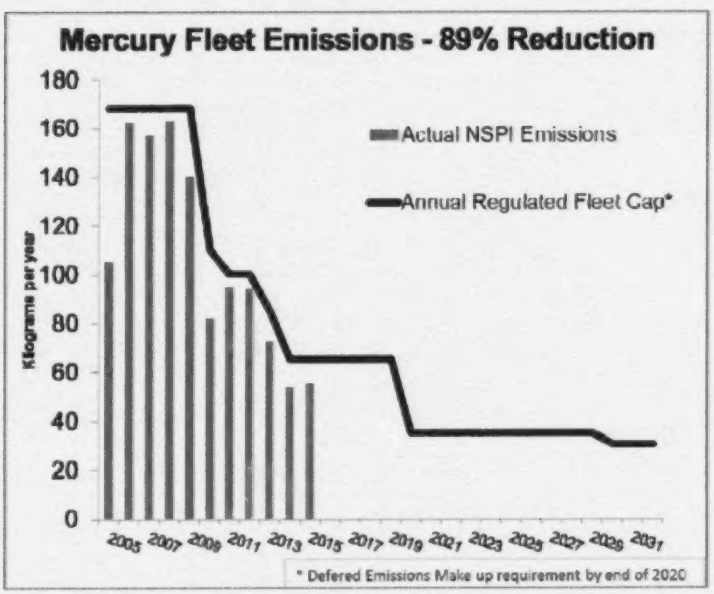
Why this Measure and Target(s)?
Mercury is a neurotoxin that persists in the environment and accumulates in the food chain. It can have negative effects on human health. Coal-fired electric power generation plants account for the vast majority of mercury emissions in the province. The purpose of this measure and targets is to reduce the negative impacts of mercury on the environment and human health. NSPI is the largest mercury emitter in the province.

Strategic Actions Taken to Achieve the Target
Regulations were created by NSE to set emissions caps for NSPI and require them to report annually to the Department to demonstrate progress in meeting these caps.

2015-2016 Results
In 2015, NSPI's mercury emissions were 55 kg, which is below the emissions cap of 65 kg for 2015. NSPI's mercury diversion plan was approved in November 2015.



Ultimate Goal
Our ultimate goal is clean air. Our goal for this measure is for NSPI to continue to meet the mercury emissions caps set out in the Air Quality Regulations, resulting in cleaner air. The first cap on NSPI's mercury emissions was set in 2005 at 168 kg. There are declining emissions caps until 2030 when the cap will be 30 kg, or 89 per cent less than baseline.



Mandate: Environment Act — Clean Drinking Water

Outcome
Clean and safe drinking water.

Measure
Percentage of population served by municipal water supplies that meet the health-based criteria for microbiological quality.

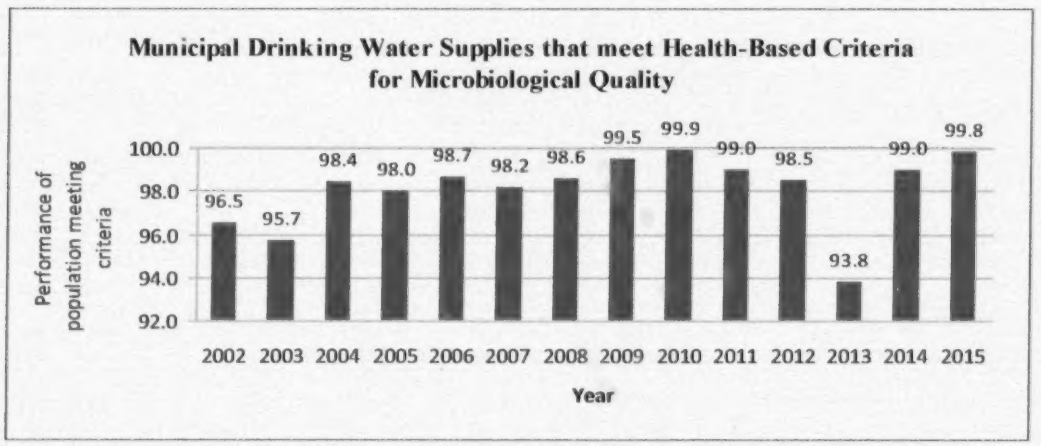
Why this Measure and Target(s)?
Approximately 65 percent of Nova Scotians obtain their drinking water from municipal drinking water supplies. Health Canada, together with provincial health and environment ministries, has established the "Guidelines for Canadian Drinking Water Quality." This document specifies the health-based criteria for a number of parameters, including maximum acceptable concentrations for total coliforms and *E. coli* bacteria.

NSE tracks the proportion of people serviced by municipal drinking water supplies who have access to drinking water that meets the health-based criteria for microbiological quality. This measure and target below demonstrates NSE's commitment to clean and safe drinking water for Nova Scotians.

Data: Base year
2001 — 96.5 per cent of the population that have municipal water

Target
All municipal drinking water supplies meet the health-based criteria for microbiological quality at all times during the calendar year.

Trends



The percentage of the population served by municipal drinking water supplies that meet the health-based criteria for microbiological quality for 2015 was 99.8 per cent. This is a slight increase over the previous year. Generally a lower percentage occurs if a boil water advisory is issued at a water supply that serves a large population.

Strategic Actions Taken to Achieve the Target

- Completed the evaluation of the Drinking Water Program including how Nova Scotia implemented the recommendations of the Walkerton Inquiry and developed a plan for continuous program improvement.
- There is an ongoing requirement in municipal drinking water facility operating approvals for the development and implementation of source water protection plans. NSE supports and is engaged in this work with involvement of watershed planners and other resources as required.
- Continued to participate in the development, review and implementation of the Guidelines for Canadian Drinking Water Quality
- Initiated improvements to the Guidelines for Monitoring Public Drinking Water Supplies and the boil advisory process.

Mandate: Wilderness Areas Protection Act and Special Places Protection Act

Outcome
Protected Natural Areas — to increase the hectares of protected land in Nova Scotia to at least 12 per cent

Measure
Total hectares of land protected through NSE Wilderness Areas Protection Act, and Special Places Protection Act — ecological sites.

Target
The annual target is to increase the hectares of land under various protection options.

Note: The Environmental Goals and Sustainable Prosperity Act includes a goal to protect at least 12 per cent of Nova Scotia by 2015.

Why this Measure and Target(s)?
This measure and target tells us how much land is legally protected as wilderness areas under the Wilderness Areas Protection Act and as ecological sites (nature reserves) under the Special Places Protection Act.

Measuring the hectares of provincial land protected through departmental programs helps track the progress made in meeting provincial and national commitments to establish systems of protected areas. This measure also provides an indication of the state of biodiversity conservation in the province as protected areas provide habitat for a wide range of species.

As well, protecting at least 12 per cent of provincial lands contributes to economic growth by providing a range of natural services, supporting outdoor recreation and tourism industries, and helping to brand Nova Scotia as a clean, green place in which to live, work, and do business.

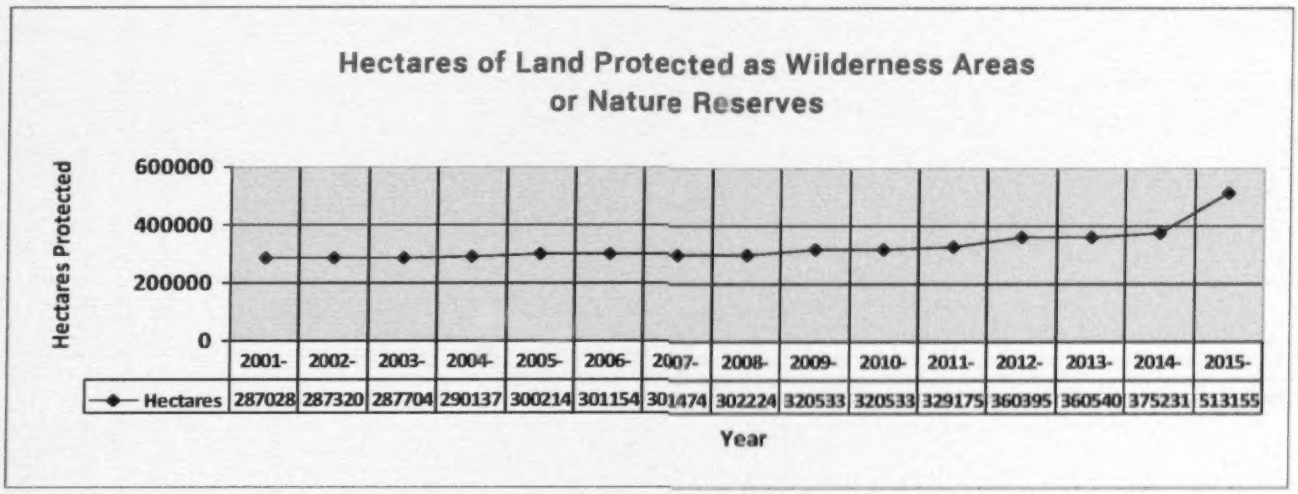
Strategic Actions Taken to Achieve the Target
In 2015–16 the province made significant progress on land protection, culminating in the protection of sites in December 2015 that achieved the EGSPA goal by protecting about 12.3 per cent of Nova Scotia.

Actions included:

- Completed wood supply analysis leading to the protection of important conservation lands in a manner that did not have a detrimental effect on current wood supply commitments.
- Advanced negotiations on third party rights, with clear mechanisms (including licensing) being put in place to accommodate drinking water and electrical infrastructure needs, and address mineral exploration rights.
- Finalized trail management agreements with provincial off-highway vehicle organizations, allowing for the designation of additional OHV routes while protecting associated lands. Additional work was also undertaken for specific sites where more details on use were needed.
- Conducted consultations for the proposed South Panuke, Holden Lake, and Medway Lakes wilderness areas to ensure that all conservation and access and use interests were well understood, and incorporated in decision making for these sites. As a result of this work, the boundary of Medway Lakes Wilderness Area was modified to accommodate the continued use of a forestry access road, and locations for OHV trail designations were determined for both Medway Lakes and South Panuke Wilderness areas.
- Through a jointly established working group, the Province is continuing discussions with Nova Scotia Mi'kmaq on the designation of specific sites, as well as access and use of protected areas.
- The Department made significant progress in completing survey plans and documentation to support the legal protection of sites within the 2013 Parks and Protected Areas Plan.

2015—2016 Results

Between January and December 2015, the province announced the legal protection of an additional 147,168 hectares of land, including 28 new wilderness areas, additions to 21 existing wilderness areas, 37 new nature reserves, and additions to 3 existing nature reserves. As of March 31, 2016, NSE protected a total of 513,155 hectares throughout the province as wilderness areas and nature reserves.



Ultimate Goal

EGSPA sets a goal to legally protect at least 12 per cent of the total land mass of the province by 2015. In addition to wilderness areas and nature reserves, lands protected under the National Parks Act, Conservation Easements Act, and Canada Wildlife Act, as well as conservation-oriented lands protected under the Provincial Parks Act, and conservation lands held by non-government charitable land trusts also contribute to the EGSPA 2015 goal.

While this measure only applies to NSE, all these other lands contribute to reaching the goal. Including other qualifying lands, approximately 677,817 hectares or 12.26 per cent of Nova Scotia was legally protected as of March 31, 2016.

Mandate: Environmental Goals and Sustainable Prosperity Act — Responsible Solid Waste Management

Outcome
Responsible Solid Waste Management

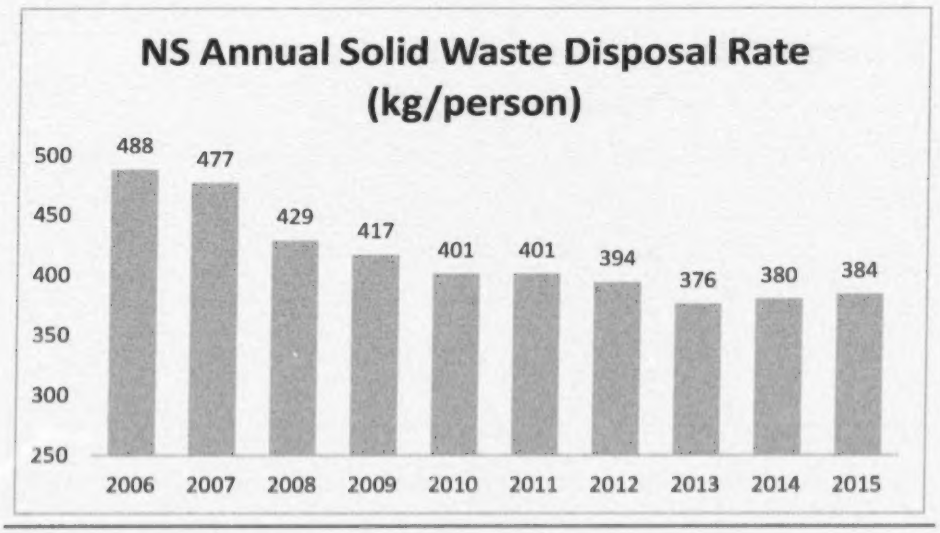
Measure
Annual solid waste disposal per capita (kg/person). Our goal is 300 kg/person by 2015 and is tracked by using the reports from the seven Nova Scotia municipal solid waste regions.

Target
Achieve a disposal rate of no greater than 300 kg/person by 2015.

Why this Measure and Target(s)?
A goal of 300 kg/person was adopted as a challenging but realistic goal that would allow Nova Scotia to maintain and strengthen its claim to having the lowest disposal rate in Canada. This demonstrates our desire to divert resources from disposal sites in order to protect the environment and create new jobs and businesses. We are currently 50 per cent below the national average.

Strategic Actions Taken to Achieve the Target
A regulatory review of the Solid Waste Regulation has been completed and regulatory options are being considered while consultation with stakeholders continues. Demonstrated consensus amongst stakeholders will be required before actions are taken.

2015—2016 Results



Ultimate Goal

Continued application of existing policies; new initiatives by Divert Nova Scotia (formerly RRFB), municipalities and other stakeholders; and impacts from potential regulatory changes will see the 300 kg/person target reached in the foreseeable future.

Changes in Measures

The initial target was to have a disposal rate of no more than 300 kg/person by 2015. Although substantial progress has been made to date, it will take more time to reach 300 kg/person goal.

Mandate: Environmental Goals and Sustainable Prosperity Act — Greenhouse Gas Emissions

Outcome
Reduced greenhouse gas emissions (GHGs) into the atmosphere to reduce current and future damage to the economy, ecosystems, and human health.

Measure
Our annual provincial GHG emissions are measured by a combination of two reports: 1) our total estimated annual GHG is measured in the *National Inventory Report* (NIR) from Environment and Climate Change Canada (ECCC); and 2) the GHG emissions from our electricity production is also measured, verified, and reported to us annually by Nova Scotia Power, as required by our Greenhouse Gas Emissions Regulations.

To measure progress toward the EGSPA target for 2020, total GHG emissions in Nova Scotia each year are compared with 1990, the base year for our GHG emissions reduction target.

Baseline Year
1990 — Nova Scotia total GHG emissions in 1990 were 20.0 Mts.

Target
Our target as legislated by EGSPA is set for 2020, without specific targets for years prior to 2020. The target is by 2020 reduce our total GHG emissions to a level that is **10 per cent below our 1990 GHG emissions** (stated as "Mts": millions of tonnes of CO_2 eq).

According to the latest (2014) national GHG Inventory, our 1990 GHG emissions were 20.0 (Mts); therefore our **2020 GHG target is 18.0** (Mts).

Why this Measure and Target(s)?
Continued warming due to the growing release of GHG into the atmosphere has long-term negative impacts on the environment, economy, food supply, human health, and ecosystems. International agreements (e.g. United Nations Framework Convention on Climate Change) have accepted that all jurisdictions must adopt policies to reduce their output of greenhouse gases, which means addressing the sources of our manmade GHG production, which is primarily through the production and use of fossil fuels.

To meet our shared responsibility, in 2007 Nova Scotia adopted the target set voluntarily by our neighboring jurisdictions through agreement of the New England Governors and Eastern Canadian Premiers. This goal is to reduce the region's annual GHGs by 2020 to a level 10 per cent below its GHG level in 1990.

Note: The *National Inventory Report* provided annually by ECCC periodically revises its prior GHG data, based on new information or improvements in methodology for estimating GHG emissions. A revision of all years, including our base year (1990) was released in April 2014.

Strategic Actions to Achieve the Target

The principal strategic action to achieve the *EGSPA* target is our "Climate Change Action Plan" of January 2009. The key action in this plan was the creation of the Greenhouse Gas Emissions Regulations (August 2009) for electricity production. This regulation sets progressively lower caps on GHG produced by electricity production sector, which is the largest single source of GHG emissions in the province, and thus addresses most of the annual GHG reductions needed to meet the EGSPA target for 2020.

In 2012 the federal government proposed a national regulation of GHG from coal-fired electricity, which would have superseded and compromised the effects of our own GHG regulation established in 2009. But based on our early action starting with our GHG Regulation in 2009, Nova Scotia successfully negotiated in 2013 with Environment and Climate Change Canada (ECCC) an "Equivalency Agreement". It allows our Nova Scotia regulation of electricity GHG to take precedence over the proposed federal regulations. It will enable Nova Scotia to reach or exceed the federal coal-fired GHG reduction target, but in a more flexible and less costly way for our ratepayers.

In 2014—2015 the Climate Change Unit (CCU) updated and improved its GHG Monitoring and Reporting system and sources. This update included preparation and signing of a *Memorandum of Agreement* (MOA) with ECCC, to allow our direct access to the annual GHG reports which large final emitters in Nova Scotia must file with ECCC every June. Gaining access to this data each year 8 months prior to its public release strengthens our ability to monitor trends in GHG output from our large industrial sources, regulated and non-regulated.

2015 Results
The latest *National Inventory Report* (for emissions in 2014, report released April 2016) states Nova Scotia's total GHG in 2014 was **16.6 Mts.** This result was a significant reduction from the prior year (18.4 Mts in 2013), and continues the steady decline in our GHG since EGSPA was legislated (2007).

The 2014 result puts our GHG emissions below the 2020 target for the first time, although 2014 was a year of high oil prices, which reduced the use of fossil fuels. This lower use of fossil fuels was combined with a substantial increase of wind power newly built in our electricity system, due to the Renewable Electricity Regulations (2007) of the Nova Scotia Department of Energy. The regulation requires that 25 per cent of electricity sold to Nova Scotians be from renewable sources by 2015.

Since 2014, oil prices have dropped dramatically. We expect increased use of fossil fuels and thus a possible increase in GHG emissions after 2014. Reductions in recent years have been mainly due to our early actions, in particular our GHG regulations for the electricity sector plus actions by other departments (e.g. Renewable Electricity Regulations of the Department of Energy, energy efficiency initiatives).

Trends
Since GHG legislation (EGSPA 2007)

Year	Nova Scotia GHG emissions (total annual)
2007	23.7
2008	21.3
2009	20.6
2010	20.4
2011	21.1
2012	19.3
2013	18.4
2014	16.6

Ultimate Goal
The ultimate goals of GHG reduction includes doing our share among our trading partners in mitigating the causes of climate change and its serious impacts. Along with long-term protection of our well-being, ecosystems, and infrastructure, GHG reduction in cooperation with our neighboring trading partners allows our region a fairer economic playing field.

Our long-term GHG reduction commitment, as recommended by science and agreed with our neighbors through the New England Governors and Eastern Canadian Premiers is GHG emissions of **80 per cent below peak levels by 2050.**

The indirect goal is a transformation of our energy supply and demand to a more sustainable basis, since imported fossil fuels are increasingly volatile in price and availability, and renewable energy cost is steadily declining, and these sources are based within or near our province. Although this transformation will take years, it has triggered innovation and investment in energy sources and efficiency in the province, while bringing a more sustainable economy.

Nova Scotia began this transformation as an economy with high carbon intensity (fourth highest per capita in Canada, which is among the highest globally), but due to our early and continued action we are now positioned to make the energy and economic transformations needed, and at less cost. Our actions on climate have shown that Nova Scotia can have economic expansion along with GHG reduction.

Mandate: Environmental Goals and Sustainable Prosperity Act — Clean Air for Human Health and Environmental Protection

Outcome Clean Air for human health and environmental protection.

Measures
Ambient ground-level ozone (O_3) in parts per billion (ppb) and fine particulate matter ($PM_{2.5}$) in micrograms per cubic metre ($\mu g/m^3$)*, measured annually and averaged over three consecutive years.

Measurements of ground-level ozone and fine particulate matter are compared to the Canadian Ambient Air Quality Standards (CAAQS) to determine achievement, and air zone management levels and actions.

CAAQS achievement and management levels are determined by the greatest pollutant measurements (8 hour O_3, 24 hour $PM_{2.5}$*, or Annual $PM_{2.5}$) in an air zone.

Note: * $\mu g/m^3$ means micrograms per cubic meter and is a measurement of density of $PM_{2.5}$ (less than 2.5 microns — i.e., airborne particles that are 2.5 microns or less in diameter).

See the table below, Air Management Threshold Values and Actions.

Air Management Threshold Values and Actions				
Management Level	**Management Actions**	**Air Management Threshold Values**		
		Ozone 8-hour (ppb)	**$PM_{2.5}$ 24-hour ($\mu g/m^3$)**	**$PM_{2.5}$ Annual ($\mu g/m^3$) (Achieve 10 or less)**
Red	Actions for **Achieving** Air Zone CAAQS	63	28	10
Orange	Actions for **Preventing** CAAQS **Exceedance**	56	19	6.4
Yellow	Actions for **Preventing** air quality **Deterioration**	50	10	4
Green	Actions for **Keeping Clean Areas Clean**	0	0	0

Target

Achieve CAAQS or less for ground-level ozone and fine particulate matter in each of four air zones in Nova Scotia. There are three CAAQS for ground-level ozone and fine particulate matter:

- 63 ppb ground-level ozone or less, three-year average of the annual 4th highest daily maximum 8-hour average concentration
- 28 µg/m3 or less of PM2.5, three-year average of the annual 98th percentile (98th percentile of a set of data is the point where 98 per cent of the data are below it) of the daily 24-hour average concentrations
- 10.0 µg/m3 or less of PM2.5, three-year average of the annual average concentrations

Why this Measure and Target(s)?

Ground-level ozone and fine particulate matter are pollutants that contribute to degraded air quality and the formation of smog, which have negative effects on human health and the environment. The purpose of the measures is to reduce smog.

Strategic Actions to Achieve the Target

- Where applicable, work together with stakeholders to maintain air quality, achieve the CAAQS, and drive continuous improvements in air quality.
- Where applicable, work with emitters to reduce emissions that contribute to the formation of ground-level ozone and particulate matter.
- Maintain the provincial ambient air monitoring network to measure and report on achievement.

2012–2014 Results

In 2014 the CAAQS were achieved in all air zones of Nova Scotia. The management levels for air zones that have CAAQS below exceedance thresholds include: the Central air zone being in the yellow level that requires actions for preventing air quality degradation and the other three air zones in the orange level that requires actions for preventing CAAQS exceedance.

Year	Number of air zones achieving CAAQS	Air Zone (AZ) Management Level Determination (Red, Orange, Yellow, or Green)			
		Central AZ	Eastern AZ	Northern AZ	Western AZ
2012–2014	4	Yellow	Orange	Orange	Orange

For more information on the CAAQS, please see the Nova Scotia Air Zone Report at **http://www.novascotia.ca/nse/air/**

Ultimate Goal

Achieve CAAQS or less for ground-level ozone and fine particulate matter in each of four air zones in Nova Scotia.

Mandate: Environmental Goals and Sustainable Prosperity Act — Wastewater Treatment Facilities

Outcome
All municipal wastewater treatment facilities provide at least primary treatment by 2020 — i.e. prevention of adverse effects of wastewater discharges on public health and the environment.

Measure
Percentage of wastewater treatment facilities that provide at least primary treatment.

Target
All municipal wastewater treatment facilities provide at least primary treatment by 2020*.

Why this Measure and Target(s)?
In Nova Scotia, the discharge of untreated wastewater results in beaches closed to swimming, waters closed to shellfish harvesting, and the odor and aesthetics associated with raw discharges affecting our ecotourism potential. Our streams, estuaries and coastal waters can be threatened by the substances found in inadequately treated wastewater and drinking water can become contaminated.

By ensuring that all facilities have at least primary treatment, we ensure a level of protection against the adverse effects of wastewater discharges.

Strategic Actions to Achieve the Target
Work is being done on a draft provincial wastewater standard. NSE is currently exploring implementation options for this standard.

2015—2016 Results
Approximately 55 per cent of Nova Scotians dispose of their wastewater into a central sewer collection system; the remaining 45 per cent utilize individual on-site septic systems. There are currently 141 municipal central sewer collection systems in the province.

In 2015—2016, no new systems were commissioned. Currently, 131 facilities (93 per cent) have at least a primary level of treatment.

Year	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
Percentage	90	91	91	92	92	93	93	93

Ultimate Goal

The ultimate goal is to have 100 per cent of wastewater treatment facilities provide at least primary treatment by 2020. There are 10 facilities remaining in Nova Scotia with raw wastewater discharge. One of these facilities is currently in the process of commissioning a new treatment facility and another is beginning the pre-design process.

NSE is contributing to this goal by developing an implementation plan for the Municipal Wastewater Effluent Strategy. NSE will continue to consult with municipalities on the development of this plan.

Change in Measure

On February 17, 2009, Nova Scotia endorsed a Canada-wide Strategy for Municipal Wastewater Effluent (MWWE). This strategy calls for a minimum of secondary treatment. Although this standard is more stringent than primary treatment, the timelines are longer than the 2017 date previously stated in EGSPA.

Also in June 2012, the federal government published new Wastewater Regulations that require treatment of high risk discharges by the year 2020.

The timeline was modified to achieve the goal by the year 2020, instead of 2017 to align this priority with new federal Wastewater Regulations.

Appendix A

Annual Report under Section 18 of the Public Interest Disclosure of Wrongdoing Act

The *Public Interest Disclosure of Wrongdoing Act* was proclaimed into law on December 20, 2011.

The *Act* provides for government employees to be able to come forward if they reasonably believe that a wrongdoing has been committed or is about to be committed and they are acting in good faith.

The *Act* also protects employees who do disclose from reprisals, by enabling them to lay a complaint of reprisal with the Labor Board.

A Wrongdoing for the purposes of the *Act* is

a) a contravention of provincial or federal laws or regulations
b) a misuse or gross mismanagement of public funds or assets
c) an act or omission that creates an imminent risk of a substantial and specific danger to the life, health or safety of persons or the environment, or,
d) directing or counselling someone to commit a wrongdoing

Information Required under Section18 of the *Act*	**Fiscal Year 2015—2016**
The number of disclosures received	**Nil**
The number of findings of wrongdoing	**Nil**
Details of each wrongdoing	
Recommendations and actions taken on each wrongdoing	